



# **DoD Regulatory Update Hazardous Air Pollutants**

**Drek Newton**

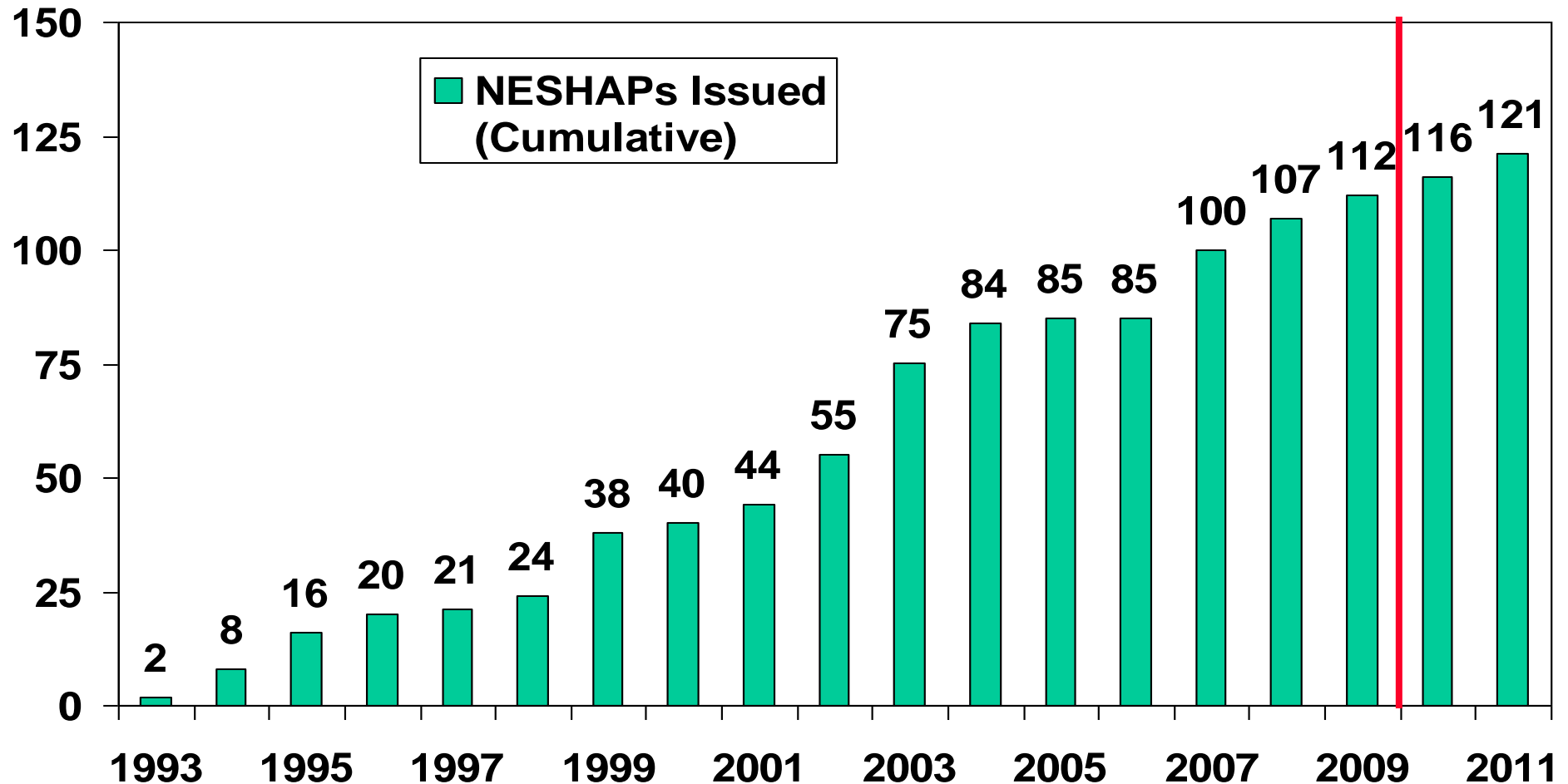
**Naval Facilities Engineering Service Center**

**Environment, Energy, Sustainability &  
Security Symposium**

**June 14-17, 2010**

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE <b>JUN 2010</b>		2. REPORT TYPE		3. DATES COVERED <b>00-00-2010 to 00-00-2010</b>	
4. TITLE AND SUBTITLE <b>DoD Regulatory Update Hazardous Air Pollutants</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Naval Facilities Engineering Service Center, 1100 23rd Street, Port Hueneme, CA, 93043</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES <b>Presented at the NDIA Environment, Energy Security &amp; Sustainability (E2S2) Symposium &amp; Exhibition held 14-17 June 2010 in Denver, CO.</b>					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>Same as Report (SAR)</b>	18. NUMBER OF PAGES <b>27</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			

# NESHAP Regulatory Progress



***NESHAP = National Emission Standards for Hazardous Air Pollutants***

- **Brick & Structural Clay Products NESHAP and Clay Ceramics Manufacturing NESHAP**
  - Court Order to vacate issued 3/13/07
  - Court Mandate effectuating Court Order issued 6/18/07
  - **EPA set standards that were too lenient...not MACT**
  - **EPA cannot set standard of no control for covered sources**
- **Plywood & Composite Wood Products Manufacturing NESHAP**
  - Court Order to vacate portions of rule issued 6/19/07
  - EPA amendments to address part of Court Order 10/29/07
  - **EPA cannot create and exempt low risk categories**
  - **EPA cannot extend compliance date beyond statute**

- **Boilers & Process Heaters NESHAP**
  - Court Order to vacate rule issued 6/8/07
  - Court Mandate effectuating Court Order issued 7/30/07
  - Vacatur covered entire NESHAP and the definition of “commercial or industrial waste” in the Commercial and Industrial Solid Waste Incineration NSPS/EG
  - EPA cannot regulate solid waste burning boilers under CAA §112 (NESHAP); such units must be regulated under CAA §129 (Solid Waste Incineration NSPS/EG)

# NESHAPs for Boilers and Process Heaters

## Proposed Rules June 4, 2010



Applicability & Requirements	Major HAP Sources (75 FR 32005)	Area Sources (75 FR 31895)
Regulated Units	Boilers & Process Heaters	Boilers
Regulated Fuels	Coal, Biomass, Liquid (Oil), & Gas	Coal, Biomass, & Oil
Energy Audit [One Time]	All Existing Sources	Existing Sources $\geq 10$ mmBTU/hr
Biennial Tune-up	Existing Sources $< 10$ mmBTU/hr	
Annual Tune-up	Existing, New and Reconstructed Natural or Refinery Gas-Fired Sources $\geq 10$ mmBTU/hr	N/A
Emission Limits	All sources except those subject to tune-up rqmt	
CEMS	CO $>100$ mmBTU/hr & PM $>250$ mmBTU/hr	CO $>100$ mmBTU/hr

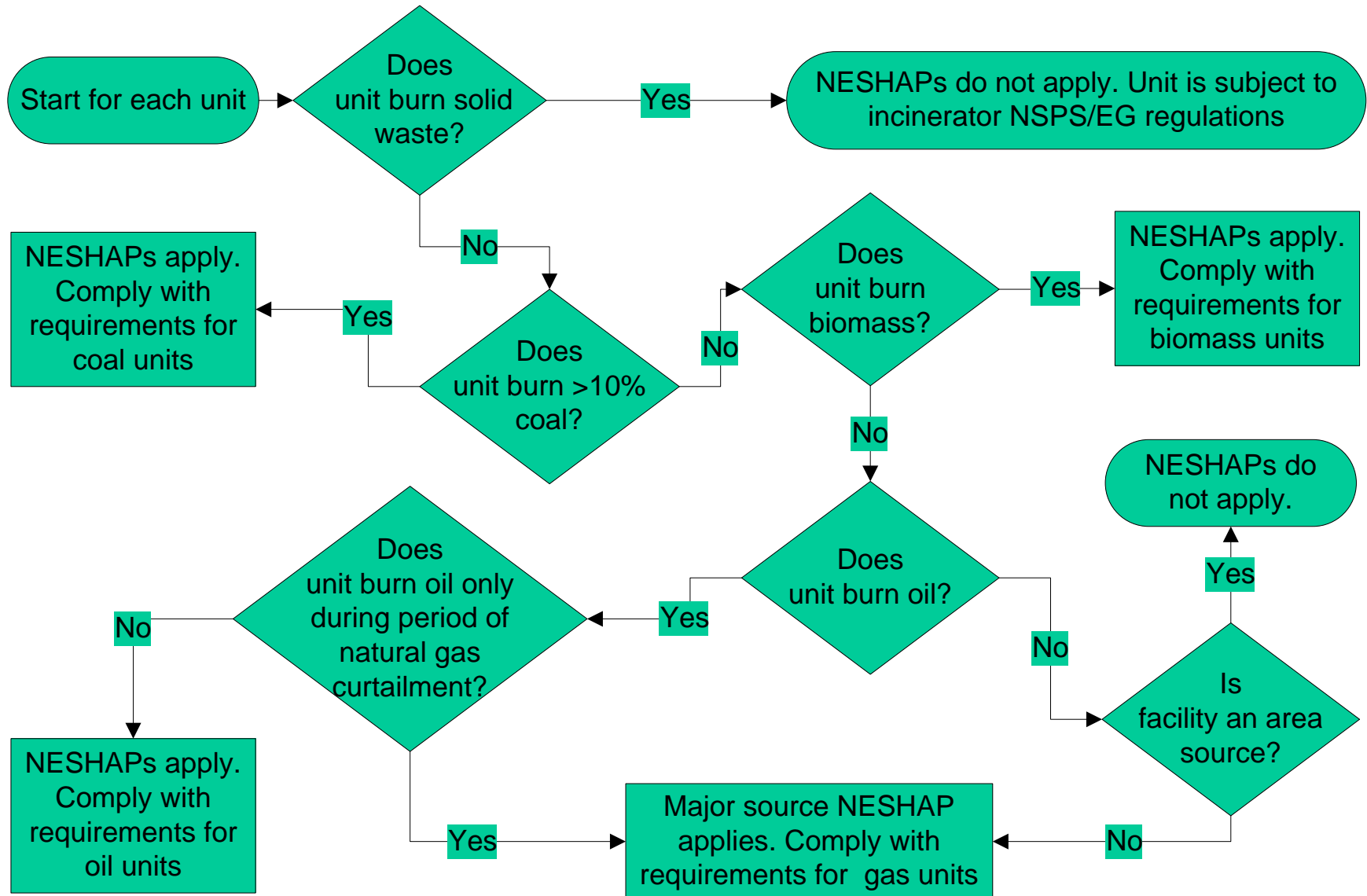
# NESHAPs for Boilers and Process Heaters

## Proposed Rules



- **Dual-Fuel Units**
  - If your boiler burns at least 10 percent coal on a total fuel annual heat input basis, the boiler is in the coal fuel subcategory.
  - If your boiler burns biomass or biomass in combination with a liquid or gaseous fuel, the unit is in the biomass subcategory.
  - If your boiler burns oil, or oil in combination with a gaseous fuel, the unit is in the oil subcategory, except if the unit burns oil only during periods of gas curtailment.
- **Upload Emission Test Reports to WebFire**

# Applicability



- **“Affected Source” Means:**
  - The **collection** of all existing “regulated units” within a [fuel] subcategory
  - **Each** new or reconstructed “regulated unit”
- **Current Court Deadline to Sign Final Rules is 12/16/10**
- **Compliance Required 3 Years After Final Rules are Published**

# Boilers & Process Heaters NESHAP (Proposed)

## Major HAP Sources - Existing $\geq 10$ mmBTU/hr



Subcategory	PM	HCl	Hg	CO	D/F	Work Practice
<b>Coal</b> Pulverized Stoker Fluidized Bed	0.02	0.02	0.000003	90	0.004	Initial Energy Audit (E-Audit)
				50	0.003	
				30	0.002	
<b>Biomass</b> Stoker Fluidized Bed SB/Dutch Oven Fuel Cell	0.02	0.006	0.0000009	560	0.004	
				250	0.02	
				1010	0.03	
				270	0.02	
<b>Liquid</b> All	0.004	0.0009	0.000004	1	0.002	
<b>Gas</b> Natural Refinery Other	N/A					E-Audit & Annual Tune-up
	0.05	0.000003	0.0000002	1	0.009	E-Audit

SB = Suspension Burner; D/F = Dioxins/Furans,

Units: PM/HCl/Hg - lb/mmBTU, CO - ppmdv@3%O<sub>2</sub>, D/F -ng/dscm(TEQ)@7%O<sub>2</sub>

# Boilers & Process Heaters NESHAP (Proposed)

## Major HAP Sources - Existing < 10 mmBTU/hr



Subcategory	PM	HCl	Hg	CO	D/F	Work Practice
<b>Coal</b> Pulverized Stoker Fluidized Bed	N/A	N/A	N/A	N/A	N/A	Initial Energy Audit & Biennial Tune-up
<b>Biomass</b> Stoker Fluidized Bed SB/Dutch Oven Fuel Cell						
<b>Liquid</b> All						
<b>Gas</b> Natural Refinery Other						

SB = Suspension Burner; D/F = Dioxins/Furans,  
Units: PM/HCl/Hg - lb/mmBTU, CO - ppmdv@3%O<sub>2</sub>, D/F -ng/dscm(TEQ)@7%O<sub>2</sub>

# Boilers & Process Heaters NESHAP (Proposed)

## Major HAP Sources – New or Reconstructed All



Subcategory	PM	HCl	Hg	CO	D/F	Work Practice
<b>Coal</b> Pulverized Stoker Fluidized Bed	0.0009	0.00005	0.0000007	1	0.002	N/A
				7	0.003	
				40	0.00003	
<b>Biomass</b> Stoker Fluidized Bed SB/Dutch Oven Fuel Cell	0.007	0.0006	0.00000007	780	0.00005	
				40	0.007	
				460	0.03	
				270	0.0004	
<b>Liquid</b> All	0.002	0.0001	0.0000003	1	0.000005	
<b>Gas</b> NG-MPF NG-Other Refinery Other	0.02	0.0002	0.0000002	2	0.001	
	0.0004		0.000000002	20		
	0.001	0.002	0.0000002	1	0.008	

SB = Susp. Burner; D/F = Dioxins/Furans, NG=Natural Gas, MPF = Metal Processing Facilities  
 Units: PM/HCl/Hg - lb/mmBTU, CO - ppmdv@3%O<sub>2</sub>, D/F -ng/dscm(TEQ)@7%O<sub>2</sub>

# Boilers NESHAP (Proposed) Area Sources



Subcategory	PM	Hg	CO	Work Practice
Existing < 10 mmBTU/hr				
Coal/Biomass/Oil	N/A			Biennial Tune-up
Existing ≥ 10 mmBTU/hr				
Coal	N/A	0.000003	310@7%O2	Initial Energy Audit
Biomass		N/A	160@7%O2	
Oil			2@3%O2	
New or Reconstructed (All)				
Coal	0.03	0.000003	310@7%O2	N/A
Biomass		N/A	100@7%O2	
Oil			1@3%O2	

Area source rule does not affect process heaters or gas-fired boilers.

Area source rule does not regulate HCl or D/F emissions.

Units: PM/Hg - lb/mmBTU, CO - ppmvd

# CISWI NSPS/EG Proposed Amendments

## June 4, 2010 (75 FR 31937)



- **Exemptions Removed**
  - Agricultural Waste Incineration units
  - **Cyclonic Barrel Burners**
  - **Burn-off Ovens**
  - Waste Burning Kilns
  - Chemical Recovery Units
  - Laboratory Analysis Units
- **Revised or Added Emission Limits**
  - Incinerators
  - Energy Recovery Units (i.e., Boilers)
  - Waste-burning Kilns
  - **Burn-off Ovens**
  - Small Remote Incinerators

*CISWI = Commercial & Industrial Solid Waste Incineration*

*NSPS = New Source Performance Standard*

*EG = Existing Source Emission Guidelines*

# CISWI NSPS/EG Proposed Amendments

## Definitions



- **Energy recovery unit** means a combustion unit combusting solid waste (as that term is defined by the Administrator pursuant to Subtitle D of RCRA) for energy recovery. Energy recovery units include units that would be considered boilers and process heaters if they did not combust solid waste.
- **Burn-off oven** means any rack reclamation unit, part reclamation unit, or drum reclamation unit.
- **Small, remote incinerator** means an incinerator that combusts solid waste (as that term is defined by the Administrator pursuant to Subtitle D of RCRA) and has the capacity to combust 1 ton per day or less solid waste and is more than 50 miles driving distance to the nearest municipal solid waste landfill.

# CISWI NSPS/EG Proposed Amendments

## Existing Source Limits



### Comparison of Emission Limits for **EXISTING** Sources

Pollutant (units)@7%O <sub>2</sub>	Current Limits	Proposed CISWI Subcategories				
		Incinerators	Energy recovery units	Waste- burning kilns	Burn-off ovens	Small, remote incinerators
CO (ppmv)	157	2.2	150	710	80	78
HCl (ppmv)	62	29	1.5	1.5	130	150
NO <sub>x</sub> (ppmv)	388	34	130	1100	120	210
SO <sub>2</sub> (ppmv)	20	2.5	4.1	410	11	44
PM (mg/dscm)	70	13	9.2	60	33	240
Cd (mg/dscm)	0.004	0.0013	0.00041	0.0003	0.0045	0.26
Pb (mg/dscm)	0.04	0.0026	0.002	0.0027	0.041	1.4
Hg (mg/dscm)	0.47	0.0028	0.00096	0.024	0.014	0.0029
D/F, total (ng/dscm)	N/A	0.031	0.75	2.1	310	1600
D/F, TEQ (ng/dscm)	0.41	0.0025	0.059	0.17	25	130
Opacity (%)	10	1	1	4	2	13
Fugitive Ash	Visible emissions for no more than 5% of the hourly observation period.					

# CISWI NSPS/EG Proposed Amendments



## Existing Source

### Comparison

Comparison			Pollutant (units)@7% O <sub>2</sub>	Current Limits	Incinerators
Pollutant (units)@7%O <sub>2</sub>	Current Limits	In	CO (ppmv)	157	2.2
			HCl (ppmv)	62	29
			NO <sub>x</sub> (ppmv)	388	34
			SO <sub>2</sub> (ppmv)	20	2.5
			PM (mg/dscm)	70	13
			Cd (mg/dscm)	0.004	0.0013
			Pb (mg/dscm)	0.04	0.0026
			Hg (mg/dscm)	0.47	0.0028
			D/F, total (ng/dscm)	N/A	0.031
			D/F, TEQ (ng/dscm)	0.41	0.0025
			Opacity (%)	10	1
			Fugitive Ash	Vis	

# CISWI NSPS/EG Proposed Amendments

## New Source Limits



Comparison of Emission Limits for **NEW** Sources

Pollutant (units)@7%O <sub>2</sub>	Current Limits	Proposed CISWI Subcategories				
		Incinerators	Energy recovery units	Waste- burning kilns	Burn-off ovens	Small, remote incinerators
CO (ppmv)	157	1.4	3.0	36	74	4.0
HCl (ppmv)	62	0.074	0.17	1.5	18	150
NO <sub>x</sub> (ppmv)	388	19	75	140	16	210
SO <sub>2</sub> (ppmv)	20	1.5	4.1	3.6	1.5	43
PM (mg/dscm)	70	0.0077	4.4	1.8	28	240
Cd (mg/dscm)	0.004	0.00066	0.00012	0.00030	0.0032	0.057
Pb (mg/dscm)	0.04	0.0013	0.0012	0.00078	0.029	1.4
Hg (mg/dscm)	0.47	0.00013	0.00013	0.024	0.0033	0.0013
D/F, total (ng/dscm)	N/A	0.0093	0.034	0.00035	0.011	1200
D/F, TEQ (ng/dscm)	0.41	0.00073	0.0027	0.000028	0.00086	94
Opacity (%)	10	1	1	1	2	13
Fugitive Ash	Visible emissions for no more than 5% of the hourly observation period.					

- **Deadlines**

- Current court deadline for EPA to sign final rule is 12/16/10
- Compliance deadline for existing CISWI units will vary by State
- Deadlines must be no later than 5 years after the final rule is published (~2015)

- **Related Proposal**

- EPA also proposed (separately) under RCRA:  
**“Standards and Procedures for Identification of Non-Hazardous Secondary Materials that are Solid Wastes When Used as Fuels or Ingredients in Combustion Units”**

# HAP Delisting and Listing Petitions



Pollutant	Status	Date
<b>Petition to Delist</b>		
Caprolactum	Approved	6/18/96
Ethylene Glycol Butyl Ether	Approved	11/29/04
Methyl Ethyl Ketone <i>Its still a VOC!</i>	Approved	12/19/05
Methanol	Denied	5/2/01
Methyl Isobutyl Ketone <i>Expect Denial!</i>	Pending	7/19/04
4,4'-Methylene Diphenyl Diisocyanate	Pending	5/26/05
<b>Petition to List</b>		
Diesel Exhaust	OBE*	

*\*Petition to List – Never Deemed Complete. Per Consent Decree (FR Notice 10/30/07) EPA will not need to take action on the petition if they regulate existing stationary diesel engines by February 2010. Final RICE Rule Amendments satisfied the consent decree. Item no longer on EPA Regulatory Agenda.*

- **Most Amendments Pertain to Existing CI RICE with Compliance Due May 3, 2013**
- **Three Types of CI Engines**
  - Emergency (two subtypes)
    - Residential/Commercial/Institutional Emergency CI
    - Other Emergency CI
  - Black Start
  - Other
- **Some Requirements For Other Units**
  - Startup
  - Non-Resettable Hour Meters for Emergency CI & SI

# Reciprocating IC Engine NESHAP Final Amendments (3/3/10)



## Existing Non-Emergency, Non Black Start CI

Size, HP		Major HAP Sources	Area Sources
< 100		Startup & Maintenance Requirements. <sup>1,2,5</sup>	Startup, Operation & Maintenance Requirements. <sup>1,2,5</sup>
100-300		Limit CO to 230 ppmvd. Startup requirements. <sup>1</sup>	
>300 & ≤500		Reduce CO 70% or more or limit CO to 49 ppmvd. Startup requirements apply. <sup>1</sup> Fuel/crankcase requirements may apply. <sup>6,7</sup>	
> 500		Reduce CO 70% or more or limit CO to 23 ppmvd. Startup requirements apply. <sup>1</sup> Fuel/crankcase requirements may apply. <sup>6,7</sup>	

# Reciprocating IC Engine NESHAP Final Amendments (3/3/10)



## Existing Emergency and Black Start CI

Type	Size HP	Major HAP Sources	Area Sources
R/C/I Emergency CI	≤ 500	Startup, Operation & Maintenance Requirements. <sup>1,2,3,4</sup>	No Requirements.
	> 500	No Requirements.	
Other Emergency CI	≤ 500	Startup, Operation & Maintenance Requirements. <sup>1,2,3,4</sup>	Startup, Operation & Maintenance Requirements. <sup>1,2,3,4</sup>
	> 500	No Requirements.	
Black Start CI	All	Startup, Operation & Maintenance Requirements. <sup>1,2,3,4</sup> Fuel/crankcase requirements apply to some black start CI. <sup>6,7</sup>	

# Reciprocating IC Engine NESHAP

## Final Amendments (3/3/10)



### Table Notes:

1. **Startup Requirements.** Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.
2. **General Operation and Maintenance Requirements.** Owners of existing stationary CI RICE not subject to any numerical emission limitations but complying with work or management practices must either operate and maintain the unit according to the manufacturer's emission-related operation and maintenance instructions; or develop and follow their own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. [63.6625(e)]
3. **Operation Requirements for Some Emergency RICE.** All existing emergency RICE on area sources and existing emergency RICE rated 500 HP or less on major HAP sources are subject to subject to operational requirements and must install a nonresettable hour meter if not already present. New emergency RICE on major HAP sources rated greater than 500 HP and installed on or after June 12, 2006 are also subject to operational requirements. [63.6625(f), 63.6640(f), 66.6655(f)]

# Reciprocating IC Engine NESHAP

## Final Amendments (3/3/10)



### Table Notes (Continued):

4. Maintenance Requirements. a. Change oil and filter every 500 hours of operation or annually, whichever comes first; b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

5. Maintenance Requirements. a. Change oil and filter every 1,000 hours of operation or annually, whichever comes first; b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

6. Fuel Requirement. Existing non-emergency CI units rated  $> 300$  HP and with a displacement of less than 30 liters per cylinder that burn diesel fuel must use ultra low sulfur diesel (ULSD). The fuel requirement does not apply to any existing CI units in Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or to existing CI units located on area sources in areas of Alaska not accessible by the Federal Aid Highway System.

[63.6604(g)]

7. Crankcase Requirements. Existing non-emergency CI Units rated  $> 300$  HP that do not have a closed crankcase system are subject to additional requirements. [63.6625(g)]

- **Area Source NESHAPs for Gasoline Distribution Facilities (12/15/09)**
  - Much needed clarifications
  - Final amendments expected December 2010
- **NESHAP General Provisions (1/3/07)**
  - Would Obliterate “Once In, Always In” Policy
  - Special provisions for flip floppers
  - *Congress inserted language into EPA’s FY08 and FY09 funding bills that prevents them from promulgating or implementing this proposal*
  - Current administration is not expected to take final action on these amendments

# Aluminum, Copper, and Other Nonferrous Foundries NESHAP (Area Sources)



- **Final Rule (6/25/09)**
- **Requires GACT at Area Sources that Melt  $\geq 600$  Tons per Year of Metal *and* Have:**
  - Aluminum foundries using materials containing  $\geq 0.1$  % Be, Cd, Pb, or Ni or  $\geq 1.0$  % Mn
  - Copper foundries using materials containing  $\geq 0.1$  % Pb or Ni or  $\geq 1.0$  % Mn
  - Other nonferrous foundries using materials containing  $\geq 0.1$  % Cr, Pb, or Ni.
- **Contains a OIAI Provision**
  - You can checkout from the applicability criteria anytime you like but you can never leave.

- **DLSME Status**
  - Yes it is still coming soon
  - EPA focus has been on rules subject to Court ordered deadlines
  - EPA Semiannual Agenda currently shows they plan to proposed by December 2010